YAMAHA

CD-R/RW Drive
CRW8824IX
SERIES

OWNER'S MANUAL

BEDIENUNGSANLEITUNG

MODE D'EMPLOI

MANUAL DE INSTRUCCIONES

FCC INFORMATION

COMPLIANCE INFORMATION STATEMENT

(DECLARATION OF CONFORMITY PROCEDURE)

Responsible Party:	Yamaha Corporation of America
Address:	6600 Orangethorpe Ave.
	Buena Park, CA 90620
Telephone:	714-522-9011
Fax:	714-228-3913
Type of Equipment:	CD Recordable/Rewritable Drive
Model Name:	CRW8824IX

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following conditions:

1) this device may not cause harmful interference, and
2) this device must accept any interference received including interference that may cause undesired operation.

See user manual instructions if interference to radio reception is suspected.

FCC INFORMATION (U.S.A.)

1. **IMPORTANT NOTICE: DO NOT MODIFY THIS UNIT!**
   This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by Yamaha may void your authority, granted by the FCC, to use the product.

2. **IMPORTANT:** When connecting this product to accessories and/or another product use only high quality shielded cables. Cable/s supplied with this product MUST be used. Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.

3. **NOTE:** This product has been tested and found to comply with the requirements listed in FCC Regulations, Part 15 for Class "B" digital devices. Compliance with these requirements provides a reasonable level of assurance that your use of this product in a residential environment will not result in harmful interference with other electronic devices. This equipment generates/uses radio frequencies and, if not installed and used according to the instructions found in the users manual, may cause interference harmful to the operation of other electronic devices. Compliance with FCC regulations does not guarantee that interference will not occur in all installations. If this product is found to be the source of interference, which can be determined by turning the product "OFF" and "ON", please try to eliminate the problem by using one of the following measures:
   Relocate either this product or the device that is being affected by the interference.
   Utilize power outlets that are on different branch (circuit breaker or fuse) circuits or install AC line filter/s.
   In the case of radio or TV interference, relocate/reorient the antenna. If the antenna lead-in is 300 ohm ribbon lead, change the lead-in to coaxial type cable.
   If these corrective measures do not produce satisfactory results, please contact the local retailer authorized to distribute this type of product. If you can not locate the appropriate retailer, please contact Yamaha Corporation of America, 6600 Orangethorpe Avenue, Buena Park, CA 90620 U.S.A.

LASER INFORMATION

Laser Diode Properties
  Material: GaAlAs
  Wavelength: 780-787 nm
  Emission Duration: Continuous
  Laser Output Power: Less than 44.6 μW*
    * This output is value measured at a distance 200
      mm from the objective lens surface on the optical
      pick-up block.
      ANSI Class : Class 1

Eigenschaften der Laserdiode
  Material: GaAlAs
  Wellenlänge: 780-787 nm
  Strahldauer: Kontinuierlich
  Laser-Ausgangsleistung: Weniger als 44,6 μW*
    * Diese Leistung wurde in einem Abstand von 200
      mm ab der Linsenoberfläche des optischen
      Sensorblocks gemessen.
      ANSI-Klasse: Klasse 1

Caractéristiques de la diode laser
  Matériau: GaAlAs
  Longueur d'onde: 780-787 nm
  Durée d'émission: Continue
  Puissance de sortie du laser: Moins de 44,6 μW*
    * Cette valeur de sortie a été mesurée à une
      distance de 200 mm depuis la lentille sur le bloc
      capteur optique.
      Classe ANSI: Classe 1

Propiedades del diodo láser
  Material: GaAlAs
  Longitud de onda: 780-787 nm
  Duración de la emisión: Continua
  Potencia de salida láser: Menos de 44.6 μW*
    * Esta salida es el valor medido a una distancia de
      200 mm de la superficie del objetivo del bloque
      captor óptico.
      Clase ANSI : Clase 1

CAUTION
Use of controls or adjustments or performance of
procedures other than those specified herein may result
in hazardous radiation exposure.

ACHTUNG
Halten Sie sich beim Bedienen und Einstellen der
Bedienungselemente sowie bei der Bedienungsabfolge
an die Anleitung, da sonst gefährliche Strahlen austreten
können.

ATTENTION
L'emploi de commandes, de réglages ou un choix de
procédures différents des spécifications de cette
brochure peut entraîner une exposition à d'éventuelles
radiations pouvant être dangereuses.

PRECAUCION
El usar los controles o ajustar o realizar procedimientos
diferentes a los especificados aquí resultará en
peligrosas exposiciones a la radiación.

VARO!   AVATTAESSA JA SUOJALUKITUS OHITETTAESSA
        OLET ALTTIINA NÄKYMÄTTÖMÄLLE
        LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

VARNING! OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR
        ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD.
        BETRAKTA EJ STRÅLEN. STRÅLEN ÄR FARLIG.

CLASS 1 LASER PRODUCT
LASER KLASSE 1 PRODUKT
LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT
PRODUIT LASER DE CLASSE 1

CAUTION   - VISIBLE AND / OR INVISIBLE LASER RADIATION WHEN OPEN.
          AVOID EXPOSURE TO BEAM.
VARNING   - SYNLIG OCH / ELLER OSYNLIG LASERSTRÅLNING NÄR DENNA
          DEL ÄR ÖPPNAD. STRÅLEN ÄR FARLIG.
VARO !   - AVATTAESSA OLET ALTTIINA NÄKYVÄLLE JA / TAI
          NÄKYMÄTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
VARNING   - SYNLIG OCH / ELLER OSYNLIG LASERSTRÅLNING NÄR DENNA DEL
          ÄR ÖPPNAD. BETRAKTA EJ STRÅLEN.
VORSICHT ! SICHTBARE UND / ODER UNSICHTBARE LASERSTRAHLUNG
          WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.
ATTENTION - RADIATION VISIBLE ET / OU INVISIBLE LORSQUE L'APPAREIL EST OUVERT.
          EVITEZ TOUTE EXPOSITION AU FAISCEAU.

YAMAHA

CD-R/RW Drive

CRW8824IX
SERIES

OWNER'S MANUAL

SAFETY PRECAUTIONS

PLEASE READ CAREFULLY BEFORE PROCEEDING

These precautions explain how to use the device correctly and safely, thereby preventing injury to yourself or to others. This section has been sub-divided into a WARNING section and a CAUTION section, according to the likelihood and nature of any potential injuries or damage inflicted. They relate to your personal safety, and also help you minimize the risk of damaging the device. Please read these sections carefully before proceeding.

⚠ WARNING

Always follow the basic precautions listed below to avoid the possibility of serious injury or even death from electrical shock, short-circuiting, damages, fire or other hazards. These precautions include, but are not limited to, the following:

● Do not open the device or attempt to disassemble or modify it.
  Otherwise, there is an increased risk of electrical shock or fire. The device contains no user-serviceable parts. If it appears to be malfunctioning, have it inspected by qualified service personnel.

● Do not look inside the device.
  If you expose your eyes to the laser inside the device, you risk damage or loss of your vision.

● Do not insert fingers or foreign objects into the device.
  Otherwise, there is an increased risk of personal injury, electrical shock, damage to the device or fire. Please take particular care if small children are present.

● Do not expose the device to rain, use it near water or in damp or wet conditions or place containers on it that contain liquids which might spill into any openings.
  Otherwise, there is an increased risk of electrical shock, fire or personal injury.

● Follow the Owner's Manual carefully.
  Otherwise, there is an increased risk of personal injury, electrical shock, fire or damage to the unit. Follow the correct procedure when setting up the device.

● If unusual smells, sounds or smoke emanate from the device or if liquids enter the device, switch the computer off immediately and unplug it from the power outlet.
  Otherwise, there is an increased risk of electrical shock, fire or damage to the device. Return the device immediately to the store at which it was purchased or alternatively, to the nearest Yamaha dealer (listed at the back of this manual).

● Make sure the computer is electrically grounded
  Otherwise, there is an increased risk of electrical shock.

● When opening up the computer, always unplug the computer from the electrical outlet. Do not touch the plug with wet hands.
  Otherwise, there is an increased risk of electrical shock.

● When used in a fan-cooled system, the drive should not be exposed to temperatures outside the range 5 ~ 35°C (41 ~ 95°F).

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⚠ CAUTION

Always follow the basic precautions listed below to avoid the possibility of physical injury to yourself or others, or damage to the instrument or other property. These precautions include, but are not limited to, the following:

● Always unplug the computer from the electrical outlet if it will not be used for a prolonged period of time or if there is a risk of lightning.
Otherwise, there is an increased risk of electrical shock, short-circuiting or fire.

● Do not expose the device to excessive heat or vibrations such as in direct sunlight or near a heater. Also avoid placing it in extreme cold or much dust.
Otherwise, the front panel may become disfigured or the internal components may be damaged.

● Do not use the device near other electrical products such as televisions, radios or speakers.
Otherwise, this may cause interference which can affect the proper operation of those other products.

● Do not place the device in an unstable position.
Otherwise, it may accidentally fall down and be damaged or cause personal injury.

● Mount the device horizontally.
Otherwise, written data may be destroyed. Set the device up according to the instructions in the Owner's Manual.

● Always remove the disc from the tray before transporting the device.
Otherwise, written data may be destroyed.

● When cleaning the device, never use benzene, paint thinners, detergents or chemical-impregnated wiping cloths. Also, do not place vinyl, plastic or rubber objects on the device.
Otherwise, the device may be damaged or its front panel may become discolored. Use a soft, dry cloth to wipe the device.

● Do not rest your weight on or place heavy objects on the device and do not use excessive force on the buttons, switches or connectors.
Otherwise, there is an increased risk of damage to the device or personal injury.

● Do not listen to audio with headphones at high volume and for prolonged periods of time.
Otherwise, there is an increased risk of hearing loss.

● Before using the device, set the volume dial to its lowest setting.
Otherwise, sudden bursts of sound can cause hearing loss.

● Do not place the device near sources of magnetic interference, such as computer displays.
Magnetic interference can affect the operation and stability of the device.

● Have the device serviced regularly.
Otherwise, dust can build up inside the device, increasing the risk of fire or damage. For information about servicing charges, contact the store at which the device was purchased or alternatively, the nearest Yamaha dealer (listed at the back of this manual). The device should be serviced about once a year.

■ About CD-R/RW discs

Please read the following regarding the handling of CD-R/RW discs.

1. Do not expose discs to excessive heat such as in direct sunlight or near a heater.
   Also avoid keeping them in a humid place.

2. Do not touch disc surfaces.
   When handling a disc, hold it by its edges.

3. Remove dust and dirt from disc surfaces.
   Use air-based dust removers. The surfaces may be scratched if wiped with a dry cloth.

4. Do not stick labels on disc surfaces.

5. Do not write on disc surfaces except where indicated.

6. Do not clean discs with chemicals or detergents.

7. Do not bend or drop discs.

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1. **The information contained in this manual is subject to change without prior notice.**

2. **All trademarks contained in this manual belong to their respective owners.**

3. **Yamaha does not bear any responsibility for any outcome as a result of using this device.**

4. **Reproduction of this manual, either in part or in full, is expressly forbidden.**

■ Precautions for Transportation

Before transporting the device, always put it in its original box. If the device is transported without adequate packing, the internal components may be damaged and cause the device to malfunction.

■ Copyrights

When writing to CD-R/RW, make sure that you are not infringing any copyrights. It is illegal to copy audio CDs for non-personal use. When backing up software, please make sure that you are not infringing any software copyrights for that product.

■ WARRANTY

YAMAHA AND SUPPLIERS ACCEPT NO LIABILITY FOR THE LOSS OF ANY DATA OR ANY PROBLEMS CAUSED AS A RESULT. AS A PRECAUTION, IT IS RECOMMENDED THAT THE DISCS BE TESTED AFTER THEY HAVE BEEN WRITTEN TO. FURTHERMORE, UNDER NO CIRCUMSTANCES DOES YAMAHA AND SUPPLIERS GUARANTEE THE RELIABILITY OF THE DISCS.

Table of Contents

◎ Introduction

Features of the CRW8824IX Drive

Easy setup

Implementation of an IEEE1394 interface (also known as FireWire or i.LINK) eliminates the need for drive configurations (device ID, termination, and so on). You can connect and start using the drive whenever you wish without restarting your computer.

High speed

CD-R/RW discs can be written/rewritten at up to 8X speed. For example, an audio CD (74 minutes/650MB) can be created in approximately 10 minutes. Data reading at up to 24X speed is supported.

CD TEXT support

CD TEXT is a capability that adds text data to an audio CD. Information such as the song name or artist name can be recorded using writing software. The text data on the disc you create can be displayed by a CD player that is compatible with CD TEXT.

Wide compatibility

To ensure compatibility with a wide range of discs, technical data has been exchanged with major disc manufacturers. 700MB discs are also supported.

High-fidelity audio

Writing software can be used to extract digital audio data at up to 24X speed. (This data can be saved in WAVE format in a Windows environment, or in AIFF format in a Macintosh environment.) Digital sound can be recorded with complete fidelity even when writing at 8X speed.

Reliable writing

Yamaha's proprietary Pure-Phase Laser System[1] improves jitter values[2] to allow the signal to be recorded accurately. In addition, the 4MB buffer memory and Running OPC[3] technology further enhance reliability.

1. Pure-Phase Laser System (patent applied for)
Technology that reduces phase interference of the laser beam, so that it shines accurately on the disc.

2. Jitter value
An important measure of recording quality. This has been improved 25% compared with Yamaha models not using this technology.

3. Running OPC
CD-R/RW discs vary by manufacturer in their recording characteristics, and the laser output required to write data differs by disc. Running OPC is technology that solves this problem by automatically adjusting the output of the laser according to the material of the disc on which data is being written.

About IEEE1394

IEEE1394 is an industry standard approved by IEEE (Institute of Electrical and Electronics Engineers). The serial interface has a broad bandwidth and is fast enough to bidirectionally transfer large amounts of digital video and audio data between electronic devices including computer peripherals. Also known as FireWire and i.LINK, the IEEE1394 interface allows units to transfer data or various controls over a single IEEE1394 interface cable. Unlike legacy serial interfaces such as RS-232C, IEEE1394 allows a daisy-chaining (serial connection) of devices and any two devices in the chain can transfer data to each other. IEEE1394 also supports a tree (parallel) connection of devices. In addition to this flexibility, IEEE1394 also eliminates the need for complicated settings as found in SCSI (Small Computer System Interface), such as device ID and termination. As of writing, IEEE1394 supports three different data transfer rates: 100Mbps, 200Mbps, and 400Mbps.

Before Use

System Requirements

In order to use the CRW8824IX drive, your computer system will need to meet the following set of requirements.

> **NOTE** The CRW8824IX drive may not write at a maximum speed depending on your computer's system configuration.

> **NOTE** For maximum performance, check your system setup (hardware, OS, and so on) for the CD writing software.

Windows Users

● **Computer**
   PC/AT-compatible computers
   CPU: Pentium II, 300MHz or faster.
   RAM: 64MB or more.
   IEEE1394 port: At least one IEEE1394 port is required.
   > **NOTE** This port may be a built-in (onboard) type, or provided with a PCI expansion card or a CardBus card. If you newly install an IEEE1394 PCI or CardBus interface card, your computer should have an empty PCI expansion slot or a CardBus slot. For more information about the IEEE1394 interface card, refer to "IEEE1394 Interface Card (PCI or CardBus)" shown below.

● **Operating System (OS)**
   Windows 98 Second Edition, Windows 2000

● **CD Writing Software**
   The CRW8824IX drive requires CD writing software to write onto a CD-R/RW disc. When you use the CD writing software, make sure that it supports the CRW8824IX drive.
   > **NOTE** For details about how to install and use the software, refer to the documentation that came with it.

● **CD-ROM Drive**
   You may need another CD-ROM drive for any CD-related operations (playback of an audio CD, installation from CD-ROM, and so on) until you verify that the CRW8824IX is successfully installed. Also you may need another CD-ROM drive if you are planning to copy a CD-ROM directly to a CD-R/RW disc on the CRW8824IX drive.
   > **NOTE** The CRW8824IX cannot boot your computer with a CD-ROM containing the operating system, so that the unit cannot be used for installation of the operating system.

● **IEEE1394 Interface Card (PCI or CardBus)**
   For the CRW8824IX to work properly with your computer, your IEEE1394 interface card must be OHCI compliant. As of writing, Yamaha has verified compatibility with following cards:

Manufacturer	Product	Card Type
Advansys	ASB30400	PCI
SIIG	NN2603	PCI

> **NOTE** For latest information about approved IEEE1394 interface cards, check YAMAHA CD-R/RW Drive web site at http://www.yamaha.co.jp/english/product/computer/.

> **NOTE** Some IEEE1394 interface cards may not work properly with your computer. If you newly purchase and install the interface card, make sure of the compatibility not only with your computer, but also with the CRW8824IX drive.

> **NOTE** If you already have an IEEE1394 interface card installed and working properly on your computer, there might be cases of incompatibility with your new CRW8824IX drive. In such cases, make sure that your computer system meets above requirements, and also the interface card is compatible with the CRW8824IX drive.

Macintosh Users

● **Computer**

Macintosh computers with a built-in FireWire port
CPU: PowerPC G3, 300MHz or faster.
RAM: 64MB or more.

● **Operating System**

Mac OS 8.6, 9 or later.

> **NOTE** FireWire software version 2.2.2 or later is recommended for the CRW8824IX to work properly. The latest software is available from Apple support web site.

● **CD Writing Software**

The CRW8824IX drive requires CD writing software to write to a CD-R/RW disc. When you use the CD writing software, make sure that it supports the CRW8824IX drive.

> **NOTE** For details about how to install and use the software, refer to the documentation that came with it.

● **CD-ROM Drive**

You may need another CD-ROM drive for any CD-related operations (playback of an audio CD, installation from CD-ROM, and so on) until you verify that the CRW8824IX is successfully installed. Also you may need another CD-ROM drive if you are planning to copy a CD-ROM directly to a CD-R/RW disc on the CRW8824IX drive.

> **NOTE** The CRW8824IX cannot boot your computer with a CD-ROM containing the operating system, so that the unit cannot be used for installation of the operating system.

Hard Drive Space (Windows and Macintosh Users)

When writing to a CD-R/RW disc, you will need a working area (50 to 100MB free space) on the hard drive. When creating an image file for all data to write to a CD-R/RW disc, in addition to the working area, you will need as much hard drive space as that data (up to 800MB in total). However, such hard drive space for the image file is not needed when you are directly writing from a hard drive, CD-ROM drive or so on (on-the-fly writing). In any case of writing to a CD-R/RW disc, you will need a 50 to 100MB working area on your hard drive.

> **NOTE** Data is written to a disc much more reliably when writing from an image file, eliminating the likelihood of errors occurring. Furthermore, this solution is ideal when making multiple copies of discs since the original data is backed up in your hard drive as an image file.

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Supported Discs

The CRW8824IX can write to discs that carry the following logos.

COMPACT disc Recordable	**CD-R discs**[*1] The CRW8824IX can write to these discs at 8X, 6X, 4X, and 1X speeds. These discs can be played back in a CD-ROM drive or a CD player. **NOTE** When writing at 8X or 6X speeds, please use "high-speed writing capable" discs.
COMPACT disc ReWritable	**CD-RW discs**[*2] There are two types of CD-RW discs: those that support write/rewrite speeds of 4X, 2X and 1X, and those that support only 2X. The CRW8824IX can write/rewrite at 4X and 2X speeds on the first type of disc and at 2X on the second type of disk. These discs can be read/played on a device (e.g., CD-ROM drive) that supports "CD-RW."
COMPACT disc ReWritable High Speed	**High Speed CD-RW discs**[*3] These discs allow writing/rewriting at 4~10X speeds. The CRW8824IX can write/rewrite these discs at 8X and 4X speeds. These discs can be read/played by a CD-RW drive that bears the High Speed CD-RW logo, or by a device (e.g., CD-ROM drive) that supports "CD-RW." ⚠ • In order to write, erase, or read these discs using a CD-R/RW drive, a drive bearing the High Speed CD-RW logo must be used. When using a CD-ROM drive to read these discs, the drive must be capable of reading CD-RW discs. • If these discs are used in a CD-R/RW drive not bearing the High Speed CD-RW logo, the discs may not be recognized, resulting in the computer not operating correctly or other malfunctions occurring. • Refer to the page at the URL below before attempting to read these discs on a Yamaha CD-R/RW drive not bearing the High Speed CD-RW logo. URL: http://www.yamaha.co.jp/english/product/computer/

1. Compatible with "Orange Book Part 2."
2. Compatible with "Orange Book Part 3 Vol.1."
3. Compatible with "Orange Book Part 3 Vol.2."

NOTE The Orange Book standard defines how all recordable discs (including CD-R and CD-RW) are written. Part 2 of the Orange Book standard relates to CD-R discs and Part 3, to CD-RW discs. The standard was named after the color of the book's pages.

About CD-ROM

A CD-ROM disc is a compact disc containing high-density read-only data. It has many applications, including the playback of music and video, the archiving of data, as well as on-line documentation. The following are descriptions of each CD-ROM format:

CD-DA: Up to 74 minutes of stereo audio is written in 16-bit resolution at a sampling rate of 44.1kHz for a 74 minutes disc.

Data CD: Up to 650 megabytes of computer data is stored in standard ISO9660 format for a 650MB disc.
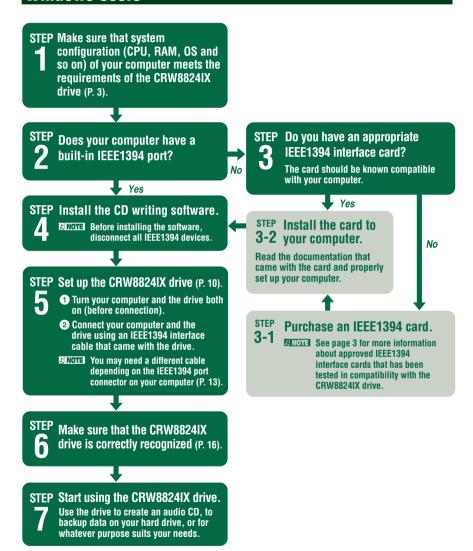
Video CD: These hold movies in which the video and audio data has been compressed using MPEG-1 technology.

Setup Flowchart

The flowcharts below show the procedure for setting up the CRW8824IX drive. For easy cross-referencing, each step includes relevant pages in this manual.

Windows Users

STEP 1 Make sure that system configuration (CPU, RAM, OS and so on) of your computer meets the requirements of the CRW8824IX drive (P. 3).

STEP 2 Does your computer have a built-in IEEE1394 port?

No →

STEP 3 Do you have an appropriate IEEE1394 interface card?

The card should be known compatible with your computer.

Yes ↓

STEP 4 Install the CD writing software.

♪ NOTE Before installing the software, disconnect all IEEE1394 devices.

← **STEP 3-2** Install the card to your computer.

Read the documentation that came with the card and properly set up your computer.

Yes ↓

No →

STEP 5 Set up the CRW8824IX drive (P. 10).

❶ Turn your computer and the drive both on (before connection).

❷ Connect your computer and the drive using an IEEE1394 interface cable that came with the drive.

♪ NOTE You may need a different cable depending on the IEEE1394 port connector on your computer (P. 13).

STEP 3-1 Purchase an IEEE1394 card.

♪ NOTE See page 3 for more information about approved IEEE1394 interface cards that has been tested in compatibility with the CRW8824IX drive.

STEP 6 Make sure that the CRW8824IX drive is correctly recognized (P. 16).

STEP 7 Start using the CRW8824IX drive.
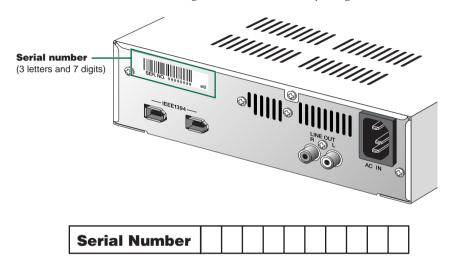
Use the drive to create an audio CD, to backup data on your hard drive, or for whatever purpose suits your needs.

Macintosh Users

STEP 1 Make sure that system configuration (CPU, RAM, OS and so on) of your computer meets the requirements of the CRW8824IX drive (P. 4).

STEP 2 Install the CD writing software.

NOTE Before installing the software, disconnect all IEEE1394 devices.

STEP 3 Set up the CRW8824IX drive (P. 10).

❶ Turn your computer and the drive both on (before connection).

❷ Connect your computer and the drive using an IEEE1394 interface cable that came with the drive.

STEP 4 Make sure that the CRW8824IX drive is correctly recognized (P. 17).

Before using the drive, make sure that the drive is recognized by CD writing software on your computer.

STEP 5 Start using the CRW8824IX drive.

Use the drive to create an audio CD, to backup data on your hard drive, or for whatever purpose suits your needs.

◎ Setup Procedures

Serial Number

Once you have taken the CRW8824IX drive out of its packaging, you should immediately note down the serial number found at the rear of the drive under the bar code. You may need to refer to this number when requesting Customer Support services. In the box below the following diagram, write down the 10-character serial number (consisting of 3 letters followed by 7 digits).
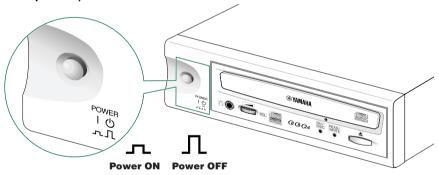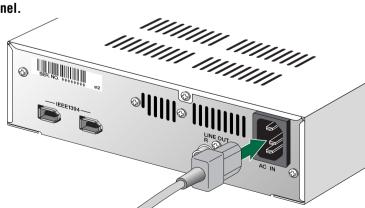
Serial number
(3 letters and 7 digits)

SER. NO. ******** st2

IEEE1394

LINE OUT
R   L

AC IN

Serial Number										

Connections

Before connecting the CRW8824IX drive and the computer as described below, make sure that you have installed appropriate CD writing software (P. 3, 4). If you newly install the CD writing software, first disconnect all IEEE1394 devices from your computer. After properly installing the software, you are ready to connect the devices. For information about how to install the software, refer to the documentation that came with it.

If your computer has no built-in IEEE1394 port, you will first need to install an IEEE1394 interface card (purchased separately). For information about how to install the card, refer to the documentation that came with it.
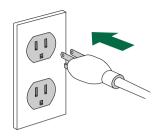
❶ Make sure that the computer is turned on.

❷ Make sure that the drive is turned OFF (the POWER switch is not depressed).

Power ON   Power OFF

❸ Connect the supplied power cable to the AC IN socket on the drive's rear panel.
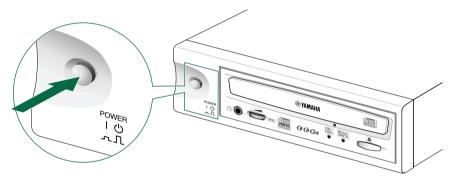

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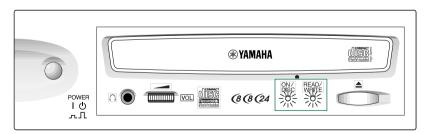**❹ Connect the other end of the power cable to an AC outlet.**

🎵 NOTE   The power unit inside the CRW8824IX will automatically adjust itself to the local voltage (100 to 240 volts).

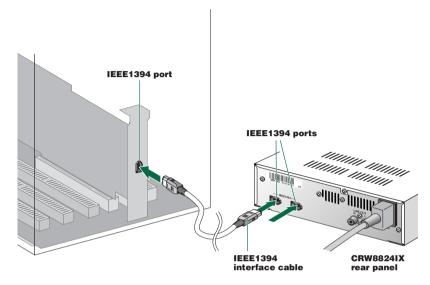**❺ Press the POWER switch on the drive's front panel to turn the unit on.**

🎵 NOTE   Make sure both LEDs (ON/DISC and READ/WRITE) on the front panel light up when you press the POWER switch.
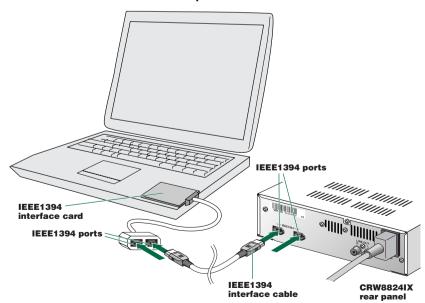

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❻ Connect either IEEE1394 port on the drive's rear panel to an IEEE1394 (FireWire or i.LINK) port on the computer using the supplied IEEE1394 interface cable (with a 6-pin connector at each end).
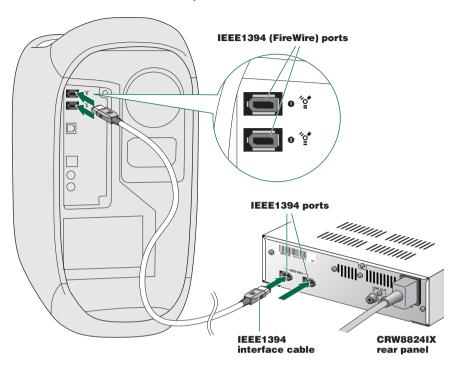
Connection to a PC desktop or tower computer

IEEE1394 port

IEEE1394 ports

IEEE1394
interface cable

CRW8824IX
rear panel

Connection to a PC notebook computer via CardBus card

IEEE1394 ports

IEEE1394
interface card

IEEE1394 ports

IEEE1394
interface cable

CRW8824IX
rear panel

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Connection to a Macintosh computer

IEEE1394 (FireWire) ports

IEEE1394 ports

IEEE1394
interface cable

CRW8824IX
rear panel
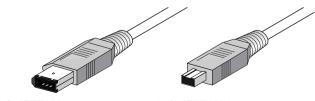
> **NOTE** You can connect the interface cable to either IEEE1394 port on the CRW8824IX drive.

> **NOTE** The IEEE1394 standard defines the maximum cable length of a single interface cable as 4.5 meters. Bear this in mind if using an interface cable longer than the supplied one.

If your computer has a 4-pin IEEE1394 port connector (especially common on notebook computers), use a cable with a 6-pin connector on one end and a 4-pin connector on the other.

6-pin IEEE1394 connector   **4-pin IEEE1394 connector**
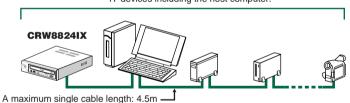
Notes on Connecting IEEE1394 Devices

Remember the following notes when connecting the CRW8824IX drive to the host computer along with other IEEE1394 devices.

● For optimum performance of writing a CD, connect the CRW8824IX directly or solely to the host computer.

● Do not connect or disconnect any IEEE1394 devices while the CRW8824IX is in operation (especially when writing to a disc).

● If there is a slower device connected between the host computer and CRW8824IX drive, the data transfer between CRW8824IX drive and the host computer will go slow, which may cause failure in writing a CD.

● The IEEE1394 ports on the CRW8824IX drive have 6-pin connectors, but do not supply power (IEEE1394 bus power).

● If you are using the host computer that does not supply power to the IEEE1394 bus, turning off the CRW8824IX drive on that bus may cause "broken communication" between the host computer and the device directly connected to the CRW8824IX and after. So, do keep all devices turned on while using them in the chain to avoid such problems.
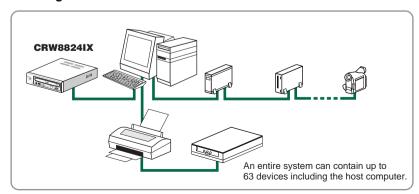
Connecting Multiple IEEE1394 Peripherals Together

Connecting in a daisy-chain

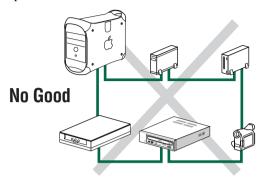A single daisy-chain can contain up to 17 devices including the host computer.

CRW8824IX

A maximum single cable length: 4.5m

Connecting in a tree

CRW8824IX

An entire system can contain up to 63 devices including the host computer.

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Restricted Connections

Avoid creating a looped connection that sends data output from a device back to the same device. The illustration below shows an example of such a loop (at the host computer).

No Good

Connecting and Disconnecting IEEE1394 Devices

Connecting Devices

Your IEEE1394 devices (including the CRW8824IX drive) are supposed to be connected to an IEEE1394 chain or tree connection even while the host computer is turned on (hot plug).

🎵 NOTE For more information about a IEEE1394 chain or tree connection, refer to page 14.

Disconnecting Devices

When you attempt to disconnect an IEEE1394 device while the computer is turned on:

● Computers running under Windows 98 Second Edition will freeze.

● Computers running under Windows 2000 allow for disconnection after you complete the "unplugging" procedure properly.

● Macintosh computers may show an alert message and allow for disconnection after you properly close the CD writing software and unmount the CD volume from the desktop.

🎵 NOTE For more information about disconnecting IEEE1394 devices while the computer is turned on, refer to the documentation about your operating system.
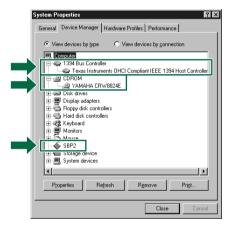
Verifying the Hardware Installation

After connecting the CRW8824IX drive to the computer (or an IEEE daisy-chain or tree), you can verify that the drive is correctly recognized from your computer.

Windows Users

Make sure that the CRW8824IX is recognized by the operating system.

From the Windows 98 Second Edition's [Start] menu, select [Settings]-[Control Panels] and open the [System] control panel. In the [System Properties] window, select the [Device Manager] tab. If you can find a new CD drive icon (YAMAHA CRW8824E), an IEEE1394 bus controller icon, and an SBP2 icon as shown below, you have successfully installed both the drive and the IEEE1394 interface card as Windows OS recognizes both devices.

This screen shot is from Windows 98 Second Edition.

NOTE For more information about how to use the operating system, refer to the documentation that came with it.

NOTE If there is a ⓘ mark next to the icon for the CRW8824IX drive or the IEEE1394 bus controller, this means that it has not been installed correctly. In either case, the CRW8824IX drive may not work properly.

NOTE For Windows 2000, double-click [System] in the [Control Panels], select the [Hardware] tab, and click the [Device Manager] button in [System Properties].

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Macintosh Users

On how to verify the CRW8824IX installation in your CD writing software, refer to documentation that came with it.

NOTE Your CD writing software will show a device name, YAMAHA CRW8824E, which corresponds to the CRW8824IX drive (product name).
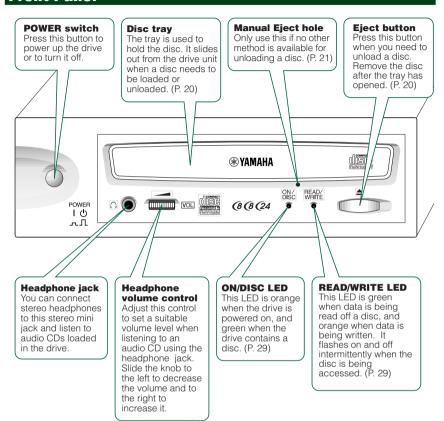
Verifying the FireWire Software Version

❶ **Select Apple System Profiler from Apple menu.**

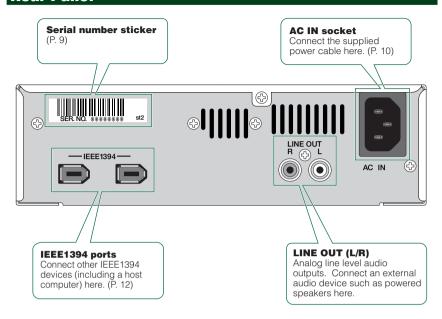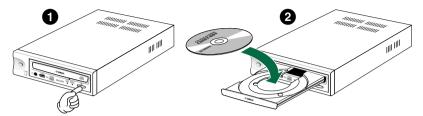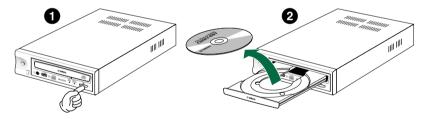❷ **In the Apple System Profiler window, click Devices and Volumes tab.**

◎ Operations

Front Panel

POWER switch
Press this button to
power up the drive
or to turn it off.

Disc tray
The tray is used to
hold the disc. It slides
out from the drive unit
when a disc needs to
be loaded or
unloaded. (P. 20)

Manual Eject hole
Only use this if no other
method is available for
unloading a disc. (P. 21)

Eject button
Press this button
when you need to
unload a disc.
Remove the disc
after the tray has
opened. (P. 20)

® YAMAHA

POWER

VOL

ON/ DISC   READ/ WRITE

Headphone jack
You can connect
stereo headphones
to this stereo mini
jack and listen to
audio CDs loaded
in the drive.

**Headphone
volume control**
Adjust this control
to set a suitable
volume level when
listening to an
audio CD using the
headphone jack.
Slide the knob to
the left to decrease
the volume and to
the right to
increase it.

ON/DISC LED
This LED is orange
when the drive is
powered on, and
green when the
drive contains a
disc. (P. 29)

READ/WRITE LED
This LED is green
when data is being
read off a disc, and
orange when data is
being written. It
flashes on and off
intermittently when the
disc is being
accessed. (P. 29)

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Rear Panel

Serial number sticker
(P. 9)

AC IN socket
Connect the supplied
power cable here. (P. 10)

SER. NO. ******** st2

IEEE1394

LINE OUT
R   L

AC IN

IEEE1394 ports
Connect other IEEE1394
devices (including a host
computer) here. (P. 12)

LINE OUT (L/R)
Analog line level audio
outputs. Connect an external
audio device such as powered
speakers here.

🎵 **NOTE** For more information about how to use the rear panel ports, refer to "Setup Procedures"
(P. 10 to P. 13).

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Loading a Disc

❶ **Open the tray by pressing the Eject button on the CRW8824IX drive's front panel.**

❷ **Place the disc onto the tray with its label or printing facing upward.**

❸ **Press the Eject button to close the tray.**

> 🎵 **NOTE** When a disc is loaded, the ON/DISC LED is lit up in orange first, then changes to green. For more details, refer to page 29.

> 🎵 **NOTE** Do not push or pull the tray using excessive force. Doing so can damage the drive or the disc. Instead, always use the Eject button to open or close the tray.
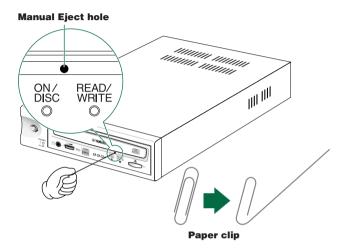
Ejecting a Disc

❶ **Open the tray by pressing the Eject button on the CRW8824IX drive's front panel.**

❷ **Remove the disc from the tray.**

❸ **Press the Eject button to close the tray.**

> 🎵 **NOTE** It may not be possible to open the disc tray while a disc is being read or written.

> 🎵 **NOTE** Only remove the disc after the disc tray has fully opened. Otherwise, you risk damaging the drive or the disc.

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Manually Ejecting a Disc in an Emergency

If the disc tray fails to open for some reason, such as malfunction of the internal spring-loaded mechanism or power outage, it can be opened manually. You should only attempt to eject a disc manually as a last resort. Malfunctions may occur if you do this too frequently.

♪ NOTE This operation requires a large paper clip (with a diameter of 2 millimeters or less). Straighten the clip so that you can insert it into the drive's Eject hole.

Manual Eject hole

Paper clip

❶ **Turn the CRW8824IX drive off if it is turned on.**

❷ **Insert a straightened paper clip (with a diameter of 2 millimeters or less) into the Manual Eject hole on the drive's front panel.**

❸ **Push the clip gently into the Manual Eject hole until the spring-loaded mechanism opens the tray. Remove the disc from the tray.**

◎ Troubleshooting

You may encounter troubles while using the CRW8824IX drive. This section gives symptoms and possible solutions or step-by-step procedures to walk around. Also refer to the YAMAHA CD-R/RW Drives web sites for more information.

Visit the YAMAHA CD-R/RW Drives web sites at:
http://www.yamaha.co.jp/english/product/computer/
http://www.yamaha-yste.com/ (Europe)

The drive does not power up.

● Make sure that the drive is properly connected to a "live" AC outlet using the supplied power cable. If necessary, reconnect the cable.

● Make sure that the front panel POWER switch is depressed. As long as the ON/DISC LED lights up or blinks in green or orange, the drive is successfully turned on. There may be no hardware trouble (P. 29). If you cannot see any LED activity, consult your nearest Yamaha dealer for repair.

The computer does not start up.

● Is the IEEE1394 interface card installed correctly?
Refer to the documentation that came with the card for details.

The CRW8824IX drive is not recognized by the operating system.

● Is the drive properly connected to the computer using a known-good IEEE1394 interface cable?
Make sure the interface cable is fully connected at both ends (P. 12, 13).

● Does the IEEE1394 interface (bus interface) appear in the operating system's information window?
Make sure that the IEEE1394 interface is recognized by the operating system (P. 16, 17).

　　If not, refer to the documentation that came with the IEEE1394 interface card or read the documentation that came with your computer for the built-in type IEEE1394 interface. Consult the manufacturer of your (add-on or built-in) IEEE1394 interface for possible solutions.

　　If the operating system recognizes the IEEE1394 interface, but the CRW8824IX drive is not recognized, consult your nearest Yamaha dealer for repair.

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Pressing the Eject button does not open the disc tray.

● Is the CRW8824IX drive powered up?
If not, go to the previous symptom, "The drive does not power up" (P. 22).

● Are you using the CD writing software?
If so, your CD writing software may lock the tray once the disc is loaded. If this is the case, try using the eject command from within the software. For more information, refer to the documentation that came with it. First close the software, and then try ejecting the disc.

● Can you open the tray after attempting to restart the computer?
Try this sequence: Close all application programs, restart the computer, and press the Eject button on the drive's front panel.

● Manually open the tray as a last resort (P. 21).
If this trouble occurs frequently, the drive's spring-loaded mechanism may be damaged. Consult your nearest Yamaha dealer for repair.

The disc keeps being ejected.

● Has the disc been placed on the disc tray correctly?
If not, place the disc properly and close the tray.

● Has dust or dirt collected on the disc surface?
If so, clean the disc surface using an air spray or by wiping using a lint-free cloth. Remember to wipe the surface from the center of the disc to the edge. Be careful not to scratch it.

● Does the drive accept other disc (audio CD, CD-ROM, blank CD-R disc and so on)?
When the drive does not accept a specific disc, the disc has a problem such as scratches on its surface, warping or other reasons. If the drive does not accept any disc, consult your nearest Yamaha dealer for repair.

The disc is not loaded.

● Does the drive automatically open the tray to eject the disc?
If so, go to the previous symptom, "The disc keeps being ejected."

● Are you attempting to load a disc supported by the drive?
Make sure that the disc is supported by the drive (P. 5).

● Has dust or dirt collected on the disc surface?
If so, clean the disc surface using an air spray or by wiping using a lint-free cloth. Remember to wipe the surface from the center of the disc to the edge. Be careful not to scratch it.

● Does the drive accept other disc (audio CD, CD-ROM, blank CD-R disc and so on)?
When the drive does not accept a specific disc, the disc has a problem such as scratches on its surface, warping or other reasons. The drive may also fail to load even a supported disc if the disc is written improperly.

● Is the drive's ON/DISC LED lit up correctly?
Normally when loading, the LED will blink in orange when the tray is closed, then in green when the disc is being loaded, and then finally it will stay lit in green after the disc has been successfully loaded (P. 29).

> If the LED activity is normal and the drive does not accept a specific disc, the disc has a problem such as scratches on its surface, warping or other reasons.

> If the LED activity is abnormal, attempt loading with several discs (supported by the drive). If the drive does not load any of them with the ON/DISC LED lit in orange all the time, consult your nearest Yamaha dealer for repair.

No sound is audible when playing back a CD-DA (audio CD) disc.

● Make sure that the LINE OUT (L/R) jacks are properly connected to powered speakers (optionally available) or other audio equipment. Also make sure all volume controls are turned up.

The drive ejects or fails to read the disc, or the ON/DISC LED remains lit in orange after the disc has been set (meaning that the disc has not been loaded or recognized—P. 29).

● Disconnect the IEEE1394 interface cable from your drive but leave the power cable connected. Now try loading the disc. If a specific disc is automatically ejected or not loaded, that disc is a problem. If the drive does not accept any supported discs (with the ON/DISC LED lit in orange), consult your nearest Yamaha dealer for repair.

Errors occur when backing up at 6X or 8X speed directly from a separate CD-ROM drive to the CRW8824IX drive.

● A possible reason is that the CD-ROM drive is not fast enough to transfer data to the CRW8824IX drive. Please use a high-speed CD-ROM drive. You may still encounter errors even if you are using a ultra-fast 32X or 42X speed CD-ROM drive, in which case the problem may be a matter of the reliability in reading data on that drive. Therefore, before writing directly at 6X or faster speed on the CRW8824IX drive, you should perform a test by writing a disc or two.
You can also refer to the following solutions.

The "Buffer Underrun" error message is displayed.

● Try the following:
  - Lower the writing speed setting.
  - Create an image file of the CD on the computer's hard drive.
  - Defragment the hard drive.
  - Close other applications such as screensaver, task scheduler, and so on.
  - Turn hard drive power management off.
  - Deactivate Active Desktop (for Windows users).
  - Disable network access.
  - Deactivate resident software (Items in Windows task bar or Mac menu bar).
  - Make sure that the CD writing software is appropriately configured (See the documentation for that software).
  - Connect the CRW8824IX drive solely to the host computer.

  NOTE If there is a slower device connected between the host computer and CRW8824IX drive, the data transfer between CRW8824IX drive and the host computer will go slow, which may cause failure in writing a CD.

  NOTE Errors can occur if you vibrate the CRW8824IX drive while it is writing to disc.

  NOTE When doing packet writing on a CD-RW disc, the actual data capacity becomes approximately 100MB less than stated on the cover of the disc. It is because packet writing requires an additional area on the disc.

Unstable operations.

● Do you have several kinds of CD writing software installed to the same system?
  Such a situation may cause conflict, resulting in unstable operations.

● Has dust or dirt collected on the disc surface?
  If so, clean the disc surface using an air spray or by wiping using a lint-free cloth. Remember to wipe the surface from the center of the disc to the edge. Be careful not to scratch it.

Other symptoms

Your CD writing software does not recognize the CRW8824IX drive.

● That software you are using may not support the drive. Consult the software manufacturer for compatibility with the CRW8824IX drive.
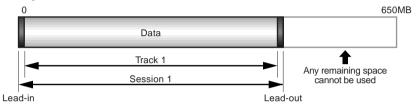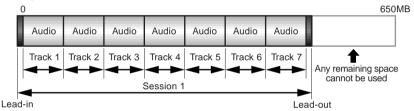
◎ **Appendix**

Writing Modes

Disc-at-Once (DAO)

This mode is used when writing a complete disc in a single pass without pausing. Data cannot be added later, even if the full capacity of the blank disc has not been used.
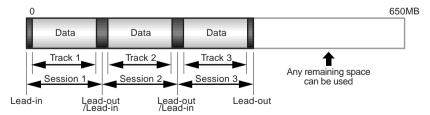
Example: General CD-ROM

0   650MB

Data

Track 1

Session 1

Lead-in   Lead-out

Any remaining space cannot be used

Example: Audio CD

0   650MB

Audio	Audio	Audio	Audio	Audio	Audio	Audio
Track 1	Track 2	Track 3	Track 4	Track 5	Track 6	Track 7

Session 1

Lead-in   Lead-out

Any remaining space cannot be used

> ♪**NOTE** The lead-in and lead-out areas signify the beginning and end points of a session. They are not part of the data but contain information about the session itself. Basically, a session consists of a lead-in, data, and a lead-out.

Track-at-Once (TAO)

This mode is used when writing data to a disc one track at a time. More tracks can be added later if there is enough space left on the disc. This is why Track-at-Once mode is sometimes referred to as Multisession.

0   650MB

Data	Data	Data
Track 1	Track 2	Track 3
Session 1	Session 2	Session 3

Lead-in   Lead-out /Lead-in   Lead-out /Lead-in   Lead-out

Any remaining space can be used

> ♪**NOTE** Only the first session of a multisession disc can be played back on a conventional audio CD player. Single session discs can be played back completely.
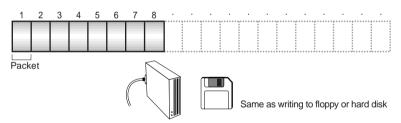
Session-at-Once (SAO)

As a writing method that combines the advantages of the above-mentioned "Disc-at-Once" and "Track-at-Once," you can combine multiple tracks into one session and write them, and then add additional data.
For example, this is the writing method used to create a CD EXTRA format CD. The audio tracks will be recorded in the first session and the data will be recorded in the second.

Example: CD EXTRA

Packet Writing

This mode is used when writing to a track of a disc using small blocks of data called "packets," in a manner similar to a floppy disk. This mode is useful when making small incremental backups of data. You will need to use software which specifically supports packet writing, such as Adaptec's DirectCD.

📝 NOTE Discs must be formatted before they can be used for packet writing. With CD-RW, erased data can be overwritten until the disc is completely full.
With CD-R, the space used by the erased data cannot be reused and is "masked" so that it is no longer visible. This can be done up to 100 times.

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About the Firmware

Firmware is a small piece of software built into the CRW8824IX drive, and is used to control the drive's basic operations. Since it resides in flash memory, it can be overwritten and updated.

To ensure more reliable operations and enhanced performance of the drive, updates to the firmware will be made available. You can find information about the most recent firmware for the drive on YAMAHA CD-R/RW Drives web site.
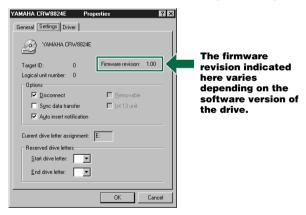
URL for YAMAHA CD-R/RW Drives web sites:
http://www.yamaha.co.jp/english/product/computer/
http://www.yamaha-yste.com/ (Europe)

The most recent user support information, including firmware updates, can be found in the YAMAHA CD-R/RW Drives web site. Please check this information regularly.

Verifying the Firmware Version of the CRW8824IX Drive

Windows Users
From the [Start] menu, select [Settings]-[Control Panels] and open the [System] control panel. In the [System Properties] window, select the [Device Manager] tab. Double-click on [YAMAHA CRW8824E] and open its Properties window.
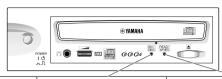

The firmware revision indicated here varies depending on the software version of the drive.

This screenshot is from Windows 98 Second Edition.

🎵NOTE Windows 2000 operating system does not display the firmware version. Use your CD writing software to check it.

Macintosh Users
Use your CD writing software to check the firmware version of your CRW8824IX drive. For details on how to use the software, refer to the documentation that came with it.

LED Indicator Messages

Status	ON/DISC LED	READ/WRITE LED
Power on (reset)	● ➜ —	● ➜ —
Ready (no disc)	☼ ➜ ●	—
Loading disc	☀ ➜ ☼	—
Ejecting disc	☀ ➜ ●	—
Ready (disc loaded)	☼ ➜ ○	—
Seeking	○	☼
Preparing to write	○	☀
Writing	○	●
Writing (test mode)	○	☀
Reading	○	○

● Lit: Orange   ☀ Blinking: Orange   —: Off
○ Lit: Green   ☼ Blinking: Green

CRW8824IX Specifications

Supported Formats

	Write	Read	Play
CD-DA	●	●	●(*4)
CD-G	●	●	
CD TEXT	●	●	
CD-ROM (*1)	●	●	
Mixed Mode CD-ROM (CD-ROM+CD-DA)	●	●	●(*4)
CD-ROM XA (*1)	●	●	●(*4)
Photo CD (*1)	●(*2)	●	●(*4)
Video CD	●	●	●(*4)
CD-i		●(*3)	
CD EXTRA	●	●	●(*4)

*1: includes multisession *2: suitable disc required *3: suitable application software required *4: suitable application software required for playback

Note) Excludes ADPCM Encode/Decode & Video Encode/Decode functions

Writing Methods	Disc-at-Once (DAO) Session-at-Once (SAO) Track-at-Once (TAO) Packet writing

Writing/Reading Speed

Writing CD-R   1X, 4X, 6X, 8X
          CD-RW   2X, 4X, 8X
Reading 24X (max) Full CAV
          Note) • Data 10X-24X
                • CD-DA extraction: 24X (max)
                • Drive can play CD-DA at 1X speed only
                • Video CD: 6.9X (max)
                • Disc (session closed): 24X (max)
                  (12 max for packet writing)
                • Disc (session not closed): 8X (max)

CD-R   1X, 4X, 6X, 8X   Writing: Orange Book Part II Ver. 3.1-specified WO disc
        Note) When writing at 6X or 8X speed, use discs made for high speed recording

CD-RW   2X, 4X   Writing/ReWriting: Orange Book Part III Vol. 1 Version 2.0-specified RW discs
         4X, 8X   Writing/ReWriting: Orange Book Part III Vol. 2 Version 2.0-specified RW discs
         Note) When writing at 2X speed, Orange Book Part III Vol. 1 Version 1.0-specified RW discs available

Data Capacity	700MB (79 min.) 650MB (74 min.) 550MB (63 min.)

Data Transfer Rate

1X: 150 KB/sec	8X: 1,200 KB/sec
2X: 300 KB/sec	10X: 1,500 KB/sec
4X: 600 KB/sec	16X: 2,400 KB/sec
6X: 900 KB/sec	24X: 3,600 KB/sec

Interface	IEEE1394-1995, conformed to P1394a Draft 2.0, 400Mbps maximum data transfer rate, two 6-pin connector ports (no power supply to the ports)

Burst Transfer Rate	13.3 MB/sec (max) (asynchronous)
Data Buffer Size	4MB (1,332 sectors)
Average Random Access Time	140 msec (reading)
Sector Size	2,048 ~ 2,352 B
Installing Style	Horizontal
Disc Loading Type	Tray loading
Audio Out	Line Out Frequency Range: 20 ~ 20,000Hz Output Level: 1 Vrms
Voltage Rating	100 ~ 240V AC
Current Draw	0.4 A
Power Consumption	17W
Operating Environment	Temperature +5 ~ +35°C Humidity 25 ~ 80% RH (no condensation)
Dimensions (includes projection)	Width: 193.2 mm Height: 61.0 mm Depth: 266.1 mm
Weight	2.4 kg

The CRW8824IX complies with the following specifications

Country / Region	Compliance Specifications			Details
	Category	Item	Standards	
USA	Safety	Electrical	UL1950	Information Technology Equipment
		Laser	21CFR1040.10 FDA Chapter 1, Subchapter J	Class 1 Laser Product
	EMC	Emission	47CFR15 FCC Part 15, Subpart B	Class B Computing Device
Canada	Safety	Electrical	CSA C22.2 No. 950	Information Technology Equipment
	EMC	Emission	ICES-003	Class B Computing Device
EU	Safety	Electrical	EN60950	Information Technology Equipment
		Laser	EN60825	Class 1 Laser Product
	EMC	Immunity	EN55024 EN61000-3-2 EN61000-3-3	Residential, Commercial and Light Industrial Areas
		Emission	EN55022	Class B Equipment
Australia New Zealand	EMC	Emission	AS/NZ 3548	Class B Equipment
Japan	Safety	Electrical	Japan's Legal Requirements for Electrical Appliances and Materials	Conform to the Technical Standard Appendix 8
	EMC	Emission	VCCI	Class B Equipment

Index

Distributors and Head Offices / Vertriebs- und Hauptgeschäftsstelle Distributeurs et sièges sociaux / Distribuidores y Casas matrices

If you have any questions, please contact your dealer or one of the following companies.

Bei weiteren Fragen wenden Sie sich Sitte an Ihren Händler oder eine der folgenden Firmen.

Pour plus de détails sur les produits, veuillez vous adresser à Yamaha ou au distributeur le plus proche figurant dans la liste suivante :

Si tiene alguna pregunta, por favor póngase en contacto con su distribuidor o una de las siguientes empresas:

EUROPE, EASTERN EUROPE and RUSSIA
Yamaha EUROPA GmbH
Yamaha Systems Technology EUROPE
Siemensstrasse 22-34,
D-25462 Rellingen, GERMANY
FAX: +3214400794
URL: http://www.yamaha-yste.com/

TEL: +80092624222
  (AUSTRIA, BELGIUM, DENMARK, FINLAND,
  FRANCE, GERMANY, HUNGARY, ICELAND,
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TEL: +3214400793

U.S.A.
Yamaha Corporation of America
Consumer Products Division
6600 Orangethorpe Ave.
Buena Park, CA 90620, U.S.A.
TEL: +1 714 522 9011
FAX: +1 714 228 3913
URL: http://www.yamaha.com/

CANADA
Yamaha Canada Music Ltd.
135 Milner Avenue, Scarborough,
Ontario M1S 3R1, CANADA
TEL: +1 416 298 1331
FAX: +1 416 292 0732
URL: http://www.yamaha.ca/

AUSTRALIA
Yamaha Music Australia Pty., Ltd.
Level 1, 99 Queensbridge Street
Southbank, Victoria 3006
AUSTRALIA
TEL: +61 3 9693 5111
FAX: +61 3 9699 2332

SINGAPORE, MALAYSIA, THAILAND, PHILIPPINES, INDIA, VIETNAM, CAMBODIA, MYANMAR, INDONESIA and IRAN
Yamaha Electronics Asia Pte Ltd.
138 Cecil Street
#05-02/03 Cecil Court, Singapore 069538
SINGAPORE
TEL: +65 223 3992
FAX: +65 223 9810

TAIWAN
Yamaha KHS Music Co., Ltd.
11F, No.150, Tun Hua North Rd.
Taipei,TAIWAN R.O.C.
TEL: +886 2 2713 8999
FAX: +886 2 2713 8666
URL: http://www.yamahakhs.com/

JAPAN
Yamaha Corporation
AV & IT Business Group
IT Sales & Marketing Division
203 Matsunokijima, Toyooka-mura, Iwata-gun,
Shizuoka-ken, 438-0192 JAPAN
TEL: +81 539 62 6558
FAX: +81 539 62 5346
URL: http://www.yamaha.co.jp/english/

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